

Add the following new claims 15-22:

15. A process for the production of propylene from an olefinic feedstock containing at least one olefin of C_4 or greater comprising:

(a) providing a crystalline silicate catalyst having an MFI structure and containing aluminum and silicon in the catalyst framework to provide a silicon/aluminum atomic ratio;

(b) subjecting said catalyst to a pretreatment procedure involving heating the catalyst in steam and de-aluminating the catalyst by treating the catalyst with a complexing agent for aluminum to remove aluminum from the catalyst framework and providing a catalyst of increased silicon/aluminum atomic ratio within the range of 180 to 1000; and

(c) contacting the pretreated catalyst with the olefinic feedstock containing at least one olefin of C_4 or greater to produce an effluent containing propylene in which the propylene yield on an olefin basis is from 30 to 50% based on the olefinic content of the feedstock.

16. A process according to claim 15, wherein at least 95 wt.% of any C_3 compounds in the effluent are present as propylene.

17. A process according to claim 15, wherein the feedstock contacts the catalyst at an inlet temperature of from 500 to 600°C.

18. A process according to claim 15, wherein the feedstock is passed over the catalyst at an LHSV of from 10 to 30 h^{-1} .

19. A process according to claim 15, wherein the catalyst of the MFI structure is silicalite.

20. A process according to claim 15, wherein the catalyst of the MFI structure is ZSM-5.

21. A process for the production of propylene from an olefinic feedstock containing at least one olefin of C₄ or greater comprising:

(a) providing a crystalline silicate catalyst having an MFI structure and containing aluminum and silicon in the catalyst framework to provide a silicon/aluminum atomic ratio;

(b) subjecting said catalyst to a pretreatment procedure involving heating the catalyst in steam to reduce tetrahedral aluminum in the catalyst from the framework and form amorphous alumina in the pores of the catalyst;

(c) de-aluminating the catalyst by treating the catalyst with a complexing agent for aluminum to remove amorphous alumina from the catalyst framework and provide a catalyst of increased silicon/aluminum atomic ratio within the range of 180 to 1000; and

(d) contacting the pretreated catalyst with the olefinic feedstock containing at least one olefin of C₄ or greater to produce an effluent containing propylene in which the propylene yield on an olefin basis is from 30 to 50 wt.% based on the olefinic content of the feedstock.

22. The process of claim 21 wherein said catalyst is silicalite and is heated in steam to a temperature within the range of 425°-870°C.